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COUNTRY USSR

REPORT

SUBJECT

"The Master Plan of the Reconstruction  
of Moscow in Action" VASST

DATE DISTR.

18 Sep 1961

NO. PAGES 1

REFERENCES

DATE OF  
INFO.PLACE &  
DATE ACQ.

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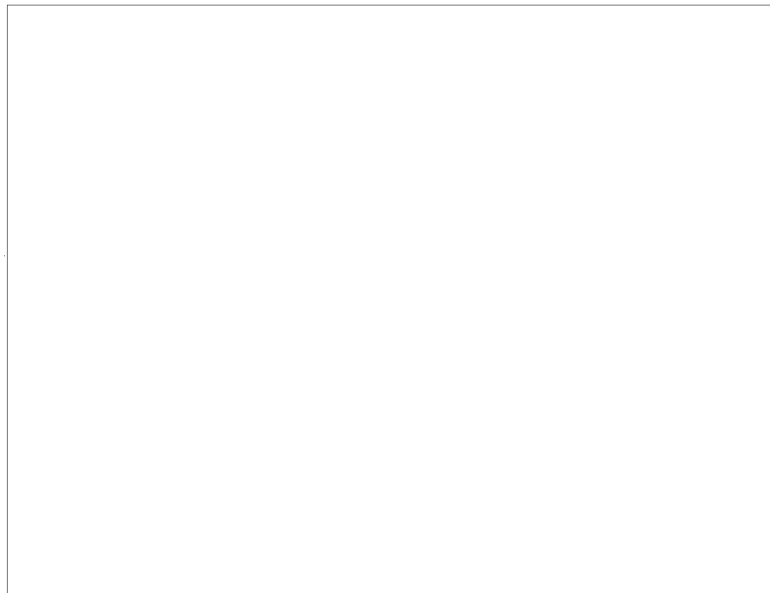
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THE MASTER PLAN OF THE  
RECONSTRUCTION OF MOSCOW IN ACTION

The grandiose programme of economic and cultural development and the improvement of the living standard of the Soviet people, adopted at the 21<sup>st</sup> Congress of the Communist Party of the Soviet Union, has a bearing also upon the plan for the development of the City of Moscow.

In the next seven years Moscow's city planners and builders will concentrate on housing development with the express purpose of doing away with the housing shortage.

More than 19,000,000 sq. metres of housing or more than was built in the city in the several preceding decades, will go up in Moscow between 1959 and 1965. Of this total 5,000,000 sq. metres will be distributed among tenants of outdated houses, which are to be pulled down. It is interesting to note that upwards of 6,000 wooden houses were demolished in Moscow in just the three years of 1956-58.

The process of renovating the city's housing will go on in the years to follow. Old wooden-house Moscow will recede into the past for good. In 1958, brick dwellings made up 73 per cent of Moscow's housing, while in 1912-13 the percentage was 32. By 1965 the percentage of solid and comfortable modern homes will rise to 91.

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The basic distinctive feature of the latest stage in housing development is the trend to build dwellings with flats designed for just one family. It so happened that until recently the bulk of Moscow's housing consisted of large flats. The two-room flats were 36 to 38 sq. metres, the three-room flats up to 50 sq. metres, and the four-room flats were still bigger. In early 1958 the average size of a Moscow flat was 46.9 sq. metres. As of 1958, the dwellings built in the capital are standard type, each flat in them being designed for one family. The flats are 28 to 30 sq. metres, to suit the average Moscow family of three or four.

Between 1959 and 1965 no less than 600,000 to 620,000 such flats will be built in Moscow.

The conveniences and sanitary amenities in them will be improved. Before the Revolution only 22 per cent of the dwellings in Moscow had central heating. In 1958 that percentage had risen to 68.9. In 1966 it will be 92.4 per cent.

In 1958, 37.8 per cent of the flats had baths. By 1966 that figure will rise to 75 per cent, whereas in Paris, for example, no more than 8 to 10 per cent of all flats have baths.

In 1958, all of 83 to 85 per cent of Moscow's housing had running water and plumbing. By 1966 that figure is to rise to 97 per cent. The water supply per inhabitant per day will rise to 600 litres, or ten-fold compared with the state of affairs before the Revolution.

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The continuing construction of gas mains will increase the city's gas supply 4,000 million cubic metres in 1958 to 13,500 million cubic metres in 1965. This will enable the city to convert totally to the use of gas. By the end of the seven year plan period gas will be the dominant fuel in Moscow. District heating will be greatly extended. This will markedly improve the sanitary state of the Moscow air basin.

Between 1958 and 1965 up to 50,000 million rubles are to be put into city development, or just as much as was put into it in the preceding 22 years. Compared with the previous seven years (1952-1958) capital investments will increase by 15,000 million rubles. Of the total, 27,000 million rubles has been allocated to housing development and more 3,000 million rubles to the building of schools, medical and children's institutions, cinemas, sports facilities and other public services.

The Seven-Year Plan provides for the building of 265 schools (including 57 boarding-schools), kinder-gartens and nurseries for 100,000 children, hospitals for 19,000 beds, cinemas with a seating capacity of 42,500, and hotels with 3,000 rooms and suites. No less than 1,700 new shops will open, and more than 1,600 cafeterias, cafés and restaurants. Markets, laundries, bath-houses and many other community services will also be built.

Much is to be done to improve public transport facilities and road- and bridge-building. The subway tracks will be extended 55 kilometres, and the trolleybus lines 280 kilometres. Thoroughfares with a total area of 7.5 million square kilometres will be built and the high-speed 110-kilometre circular

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highway is to be completed. Tunnels to channel traffic to two levels and elevated pedestrian crossings are being built at points of heaviest traffic.

Such, in outline, are the current objectives of building in Moscow.

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Standard structural members and parts produced at specialized plants, the high level of mechanization in preparatory jobs, pre-assembly and pre-finishing at plants and construction sites -- all this in the recent years greatly reduced construction time.

A total of 1,374,000 sq. metres of housing was built in 1956, the first year of the sixth five-year period. In 1957 the figure rose to 1,840,000 sq. metres, and to 2,400,000 sq. metres in 1958. In 1959 the figure was increased to 2,700,000 sq. metres.

Extensive use of standard designs has had a beneficial effect on the development of industrialized building. More than 90 per cent of Moscow's building projects in 1958 were of the standard type.

To cope with the projected building programme in the current seven years we must lay emphasis on industrialization -- converting building into a mechanized mass-production process of assembly of large pre-fabricated structural members.

Large-block and, particularly, large-panel housing, which is the most sensible constructively and economically, will be stressed in the current seven years.

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Lately, large-panel housing has been getting more and more massive in Moscow. Blocks of large-panel houses are going up in the Noviy Cheryomushki area, in Izmailovo, etc. However, the structural members used in them, predominantly of porous clay and concrete panels produced piecemeal in metal moulds, are already outdated.

New original techniques of industrially-produced large thin-wall panels of reinforced concrete reduce the weight of structural building members to one-third of the weight of brick walls, halve the labour outlay in building and lower costs about one and a half times.

The new stage in industrialized building is highlighted chiefly by the continuous conveyor-type vibrated roll-mill reinforced concrete panels developed by engineers N.Kozlov and V.Bolshakov. The rolling mill produces thin-wall panels of a width equal to the height of one storey. The length of the panels is unlimited and depends on transport and assembly possibilities. In practice, a single panel may be used to wall in 2, 3 and 4 rooms.

The first vibrated roll-mill panel houses are now going up in the area of Prospekt Mira. After summing up the experience accumulated there, mass industrial production of such houses may be launched. A block of vibrated roll-mill panel houses will soon be built in Noviy Kuzminki.

Thirty-five rolling mills are to be put into operation in order to extend the use of vibrated roll-mill members.

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Another original method of rolling pre-stressed panels of the so-called "mobile-conveyer" type is being introduced. Pre-stressing will yield an additional reduction in the weight of building members and will lower consumption of building materials.

Furthermore, the technique of total pre-fabrication, developed by Engineer V. Lagutenko, is being gradually introduced in Moscow building. This technique is based on the use of thin-wall panels produced in vertical moulds. A block of houses of this new type is going up at present in the Khoroshevo-Mnevniki area. The house-building plant there can produce 100,000 sq. metres of housing a year. A few more such plants are to be established in the near future.

Experimental large-panel houses of other structural types are to be built in 1960. Frame-panel structures, for example, afford the architect great freedom in solving the layout of flats. This type of large-panel housebuilding has a great future, since it tends to eliminate the failings of interior planning observed in the rigid load-bearing wall type.

Experimental houses made of light porous clay- and concrete panels are also to be built and so are experimental houses made of pre-fabricated block elements comprising a flat or part of a flat. and experimental houses with plastic structural members and plastic interior finishing. The use of plastics in building will gradually expand in connection with the development of the country's chemical industry.

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Large-panel housebuilding the main trend in Moscow's building policy.

As total pre-fabrication develops, the inefficient brick-laying technique will lose ground more and more. At present, however, house walls are still being largely laid manually of ordinary and ceramic bricks. To industrialize this technique large brick blocks are pre-fabricated. An original technique of pre-fabricating thin-wall brick panels of "room" size by the vibration Method has been developed in 1958. The thickness of the panels is half that of a brick. When used for exterior walls the panels get a layer of heat-insulating material. In the process of vibration the cement mortar is distributed uniformly in the seams between the bricks, and the panel as a whole acquires the mechanical strength of a brick, which is impossible in manual brick-laying. Furthermore, brick consumption is reduced to one-third and the weight of the building is half that of an ordinary structure.

Experimental construction of vibrated brick panel houses is now under way in Block 18, Noviye Cherepushki.

An extension of the new techniques of total pre-fabrication will unquestionably ensure the fulfilment of the 1959-1965 building programme. Seventy per cent of the projected housing, or 14,000,000 sq. metres of the total 19,500,000 sq. metres, will be built by full pre-fabrication.

Five hundred totally pre-fabricated buildings with a floor space of 1,000,000 sq. metres were built in 1959. The over-all building plan for the year was 2,700,000 sq. metres.

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Industrialization and concentration of building sites and the use of efficient structural methods and materials will lower building costs in Moscow by 27 per cent in the course of the seven years. In 1958 the estimated cost of 1 sq. metre of housing exceeded 1,700 rubles. In 1965 it is expected to drop to an average of 1,270 rubles. Rational architectural and planning solutions of standard designs will be another factor that will tend to reduce building costs.

Lately, standard designing has been undergoing a qualitative re-organization. Final standard blueprints are not released until they have gone through the stage of experimental designing and building.

Better standard designs for schools, medical and children's institutions, shops and public catering establishments still constitute a major problem.

It should be noted that in 1957-58 standard designs for cultural and community buildings and shopping facilities have served to improve to a certain extent the comprehensive planning of residential blocks and neighbourhoods.

However, there is still much to be done in that field economically, functionally and architecturally.

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The building done in 1956-1958 is convincing evidence that housing developments on large land lots and the consequent use of new vacant, or nearly vacant, lots is most desirable.

In 1956-1958 fifty per cent of the building was concentrated on spacious lots where the demolished housing did not exceed one or two per cent of the housing in construction. This served to extend the city's available housing at a faster rate.

Experience shows that concentrated building sites make for more efficient organization -- for mass production methods and the most effective use of building has risen and the cost of building has dropped markedly.

Concentrated building on large lots facilitates progressive planning of residential neighbourhoods for a population of 5,000 to 15,000.

Concentrated standard-design building also makes for large, architecturally homogenous ensembles.

The plan for 1959-1965 envisages an extension of concentrated and comprehensive building.

The following figures illustrate the concentration of building in Moscow by districts. The newly-developing South-Western area, for example, has a concentration of 2,500,000 sq. metres of housing; the new Cheryomushki-Ziuzino district has 2,000,000 sq. metres; Khimki-Khovrino, 1,000,000 sq. metres; Izmailovo, 1,000,000 sq. metres; Khoroshevo-Mnevniki, 900,000 sq. metres, etc.

Sixty per cent of all housebuilding in 1959-1965 will be sited in vacant city areas set aside for residential development in the master plan. In the developed city districts housing will also be built by the concentrated method predominantly in localities where existing houses are sub-standard and are to be pulled down.

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More than 1,500,000 people will be moved into new Mosxiw districts once the distribution plan is fulfilled. This will greatly ease the complex problem of residential dispersal. What is more, about 150,000 people are to be moved in the next five to seven years from the city areas to satellite towns projected with the object of decentralization.

Preliminary work has been begun on the site of a projected satellite in the Kriukovo Station area, 58 kilometres outside Moscow along the Moscow-Leningras railway. Its population is to be 65,000. Industrial buildings for plants to be re-sited from Moscow will go up hand with dwellings and community buildings to provide employment for the population of the satellite.

The architects' task in planning new areas is not one of mere traditional block designing. They are called upon to take advantage of the possibilities of concentrated building and standardization to develop new community and neighbourhood plans.

A close study of the specific features of each area --- of its topography, insolation, geology, roads and communications and existing structures -- enables architects to plan the layout in the most economically desirable manner.

However important the aesthetic aspect of the composition and layout, it is brought to nought if the economic aspect is sub-standard.

However, many problems of town-planning economics have not been solved as yet. Vast potentials in reducing building costs which exist in planning and building still remain untapped.

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Many factors influence the cost of building. These include the cost of building roads and technical communications within the block or neighbourhood; outlays for the development of transportation; the cost of building new housing in place of housing pulled down; and the cost of acquiring use of the land lot for building purposes.

The top estimate of building costs in blocks and neighbourhoods is given in the plans. It includes the cost of the community services, the building of roadways, technical networks and utilities within the block or neighbourhood, etc. Soviet architects thus strive to develop planning methods which enable them to compare the economic factors of their various town-planning solutions, much as they now compare the cost of 1 sq. metre of floor space for houses of different designs.

The architectural and aesthetic aspects of the new city ensembles are inseparable from their economic aspect.

At a time when the volume of building is continuously expanding and building methods are being improved, when the approach to dispersal is changing and tenants demand higher standards of housing, far-reaching alterations are unavoidable in planning and designing.

A housing development or neighbourhood have now become the basic unit of city planning.

Industrialization has been an impetus to a further enhancement of town-planning.

The architecture of "piecemeal" houses has ceased to dominate the aesthetic pattern of building.

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Yet the tasks confronting Soviet architects have today been greatly extended. It is up to the architect not only to provide people with good housing, but also to teach them to enjoy the advantages of community services. It is up to the architect to further socialist living conditions, to stimulate the shoots of communism typical of our social system. Indirectly it depends upon the architect to improve working conditions and public education, to better the organization of public catering, community services, to widen the network of children's institutions, and sports and recreation facilities, medical services, etc.

What is more, the Soviet architect and city planner must always bear in mind that the blocks and neighbourhoods which he builds today will tomorrow house the people of the communist society.

Many aspects of the Master Plan for the Reconstruction of Moscow have already been put into practice. Massive groups of dwellings of a unified architectural pattern -- new city ensembles -- have been erected in the South-Western district, in Leninsky Prospekt, along the Moscova embankments, the Kutusovsky Prospekt, Leningradsky Prospekt and Prospekt Peace.

Inspired by the decision of the 21<sup>st</sup> Congress of the CPSU, the architects and engineers of Moscow will spare no effort to make Moscow architecturally worthy of its lofty calling - that of the capital of the U.S.S.R.

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